REMARKS

Applicant has studied the Office Action dated February 17, 2005. Applicant respectfully requests entry of this response under the provisions of 37 C.F.R. § 1.116(a) in that it places the application and claims in condition for allowance or, at least, presents the application in better form for appeal. It is submitted that the application is in condition for allowance. Claims 1-20 are pending. Reconsideration and allowance of the pending claims in view of the following remarks are respectfully requested.

Claims 1-20 were provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-31 of co-pending Application Serial No. 09/850,390. If this later becomes an actual rejection, Applicant will respond in due course. However, Applicant submits that no action is necessary at this time due to the provisional status of the rejection.

Claims 1-20 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Bracho et al. (U.S. Patent No. 6,021,443) in view of Jacobs et al. (U.S. Patent No. 6,732,237) and de Vries et al. (U.S. Patent No. 5,819,032). This rejection is respectfully traversed.

THE PRESENT INVENTION

The present invention is directed to systems and methods for providing scalable resource discovery in a distributed computer network. One preferred embodiment of the present invention provides a method for discovering resources in a network of user nodes. According to the method, a resource request to be published is <u>received at a first user node of the network from one of the user nodes through a direct connection,</u> and it is determined <u>whether to send the resource request to a publish-subscribe server node or to send the resource request to another of the user nodes.</u> When it is determined to send the resource request to another of the user nodes, the resource request is <u>forwarded from the first user node to a second user node</u> of the network. When it is determined to send the resource request to the publish-subscribe server node, the

resource request is sent from the first user node to the publish-subscribe server node for publication to a plurality of the user nodes of the network.

Because resource requests are <u>selectively forwarded through other user nodes</u> rather than always being sent directly from the requesting user node to the publish-subscribe server node, <u>requesting user nodes gain privacy</u>. The actual user node that is requesting the resource remains anonymous to the server node, so the server node cannot keep track of which users are sharing (or even requesting) which resources. Further, the sending of the resource request to the publish-subscribe server node for publication via the publish-subscribe messaging infrastructure layer allows for efficient resource discovery in a network having a very large number of user nodes. Thus, scalability is achieved in a decentralized network while enhanced user privacy is provided.

<u>THE CITED REFERENCES</u>

The Bracho reference discloses a system and method for using hubs that are connected to a network to route events between publishers and subscribers. As shown in Figure 1, publishers 102, 110, and 166 and subscribers 104, 112, and 118 are connected to a network 120 through hubs 106, 108, and 114. Each publisher publishes events and each subscriber subscribes to receive events of certain types based on content. More specifically, each publisher and each subscriber is connected so as to be a client of one of the hubs, and the hubs are interconnected through the network. A publishers sends, via publication through the hubs, an advertisement to all subscribers to let the subscribers know the types of events that are published by that publisher. Based on the advertisements received, a subscriber sends one or more subscriptions to its local hub to subscriber to one or more types of events. A publisher publishes all its events by sending each event to its local hub. That hub sends the event to all local subscribers that have subscribed to events of that type, and also forwards the event to the other hubs so that each can send the event to all its local subscribers that have subscribed to events of that type.

Thus, in the publish-subscribe messaging system of Bracho, the interconnected hubs together form a "server cloud" that operates as the publish-subscribe server. <u>See</u> Applicant's specification at 7:22-8:2. Each publisher and each subscriber is a "user node" operated by a user (i.e., publisher user node or subscriber user node), and each of the user nodes is connected as a

client of the publish-subscribe server (i.e., through a connection with one of the hubs of the server cloud). See Bracho at 5:35-38. The subscriber user nodes request certain types of events (i.e., data structures or other information) by sending subscriptions directly to the publish-subscribe server, and in response the publish-subscribe server sends the requested events, as they are published, to the appropriate subscriber user nodes.

The Jacobs reference discloses a system and method for caching data in which the consistency of the data is allowed to fluctuate in order to maintain a desired level of performance. More specifically, users 108 are coupled to a network 104 and a content server 106 is also coupled to the network 106 through a cache server 102, as shown in Figure 1. The users 108 submit requests for content to the cache server 102 via the network 104. In response to a content request, the cache server 102 determines if the requested content is present in its cache and marked valid, as shown in Figure 3.

If so, the cache server 102 responds to the content request by sending the content from its cache to the requesting user. If not, the cache server 102 either sends the content request to the content server 106 to obtain a valid version of the requested content or, if necessary to maintain the desired level of performance, sends to the requesting user an invalid version of the requested content from its cache. Thus, in the system of Jacobs, the cache server determines whether to pass a content request on to the content server, or to just return stale content to the requesting user in order to avoid the performance degradation that would occur if the content request was passed on to the content server.

The de Vries reference discloses a system for distributing an electronic magazine from a publisher to subscribers. Articles in the magazine are sent from the publisher's server and presented as article boxes on a graphical user interface that is shown on the user's display. To view comments for a particular article, the user activates the article box to open a second screen in the graphical user interface. The second screen contains the selected article box and comment boxes surrounding the article box. To add a comment for the article, the user locates a file containing the comment and drags the file icon for that file onto a submission icon on the

graphical user interface. This causes the user's computer to send the selected comment file to the publisher's server. If accepted by the publisher, the user's comment is added to the article. Thus, in the system of de Vries, a user sends requests for articles and related comments to the publisher's server, and the publisher's server sends the requested articles and comments to the user's computer. Additionally, the user can send a comment to the publisher's server, and the publisher's server later sends this comment to other user's computers.

THE "RECEIVING" LIMITATION

None of Bracho, Jacobs, and de Vries, or a combination thereof, discloses a method for discovering resources in which a resource request to be published is <u>received at a first user node of the network from one of the user nodes through a direct connection</u>, as is recited in independent claim 1. Independent claim 9 contains similar recitations. Similarly, none of Bracho, Jacobs, and de Vries, or a combination thereof, discloses <u>a user node that includes</u> a receiving interface for <u>receiving a resource request to be published from one of the user nodes through a direct connection</u>, as is recited in independent claim 17.

In preferred embodiments of the present invention, a user node receives <u>a resource request</u> (that is to be published) <u>from another user node through a direct connection</u>. As used in the context of the present specification, a "resource request" is a request for a resource, such as a request for access to a file or other information stored on the network or a request for use of network hardware. <u>See, e.g.</u>, Applicant's specification at 3:10-26. Further, Applicant submits that this is the ordinary meaning of "resource request" to one of ordinary skill in the art. The "receiving" limitation recited in the independent claims requires that such a "resource request" be received <u>at one user node from another user node</u> and that it is received <u>through a direct connection</u> between the two user nodes.

As recognized by the Examiner, Bracho does not disclose a system in which a resource request to be published is <u>received at a first user node of the network from one of the user nodes through a direct connection</u>. In the system of Bracho, no request is ever sent from one user node

to another user node through a direct connection. The only requests of any type that are transmitted in the system of Bracho are subscription requests that request that certain types of events be sent to the subscriber user node. These subscription requests are only sent from the subscriber user nodes to the publish-subscribe server, and are never received by any user node from another user node through a direct connection. In other words, all requests are sent between a user node and the server, and are never sent between two user nodes.

In fact, in the system of Bracho the publisher user nodes only send information to the publish-subscribe server, and the subscriber user nodes only receive events and advertisements from the publish-subscribe server. No information is transmitted through direct connections between user nodes (i.e., non-server nodes). Because no information is ever transmitted through direct connections between user nodes, Bracho cannot possibly disclose a system in which a "resource request" that requests resources is received at one user node from another user node through a direct connection between the user nodes.

The de Vries reference also fails to disclose a system in which a resource request to be published is received at a first user node of the network from one of the user nodes through a direct connection. In the system of de Vries, no request is ever sent from one user node to another user node through a direct connection. Two types of requests are transmitted in the system of de Vries: a request for an article or comment that is sent to request transmission of an article or a comment related to an article, and a request to submit a comment that used to submit a new comment for an article. Both of these types of requests are only sent from the subscriber user nodes to the publisher's server, and are never received by any user node from another user node through a direct connection. In other words, all requests are sent between a user node and the server, and are never sent between two user nodes.

In fact, in the system of de Vries the subscriber user nodes only send information to and receive information from the publish's server. No information is transmitted through direct connections between user nodes (i.e., non-server nodes). Because no information is ever transmitted through direct connections between user nodes, de Vries cannot possibly disclose a

system in which a "resource request" that requests resources is received at one user node from another user node through a direct connection between the user nodes.

THE "DETERMINING" LIMITATION

None of Bracho, Jacobs, and de Vries, or a combination thereof, discloses a method for discovering resources in which it is <u>determined whether to send the resource request to a publish-subscribe server node or to send the resource request to another of the user nodes</u>, as is recited in independent claim 1. Independent claim 9 contains similar recitations. Similarly, none of Bracho, Jacobs, and de Vries, or a combination thereof, discloses <u>a user node that includes control means for deciding whether to send the resource request to the publish-subscribe server node or to send the resource request to another of the user nodes</u>, as is recited in independent claim 17.

In preferred embodiments of the present invention, it is determined whether to send the resource request (to be published), which is received at the first user node, to a publish-subscribe server node or to another user node. The "determining" limitation recited in the independent claims requires that <u>there is made a decision whether to send the "resource request" either to a publish-subscribe server node or to another user node</u>. Because there is made this determination of whether to send the resource request to the server or to send the resource request to another user node, instead of just always sending the resource request directly to the server node, the requesting user node gains privacy.

As recognized by the Examiner, Bracho does not disclose a system in which it is ever <u>decided whether to send a resource request either to the publish-subscribe server node or to another user node</u>. In the system of Bracho, the publish-subscribe server always sends both advertisements and events to the subscriber user nodes. The publisher user nodes always send events to the publish-subscribe server, and the subscriber user nodes always send subscription requests to the publish-subscribe server. Thus, advertisements, subscription requests, and events are <u>always sent from a user node to the server or from the server to a user node</u>. In the system of

Bracho, it is never decided whether to send any information, let alone a "resource request" that is received at a user node, to either the server or to another user node. Bracho does not disclose a system in which it is determined whether to send a resource request to the server or to another user node.

The Jacobs reference also fails to disclose a system in which it is ever decided whether to send a resource request either to the publish-subscribe server node or to another user node. In the system of Jacobs, the cache server receives a content request. In response to the received content request, the cache server determines whether to send that content request on to the content server or to send (a stale version of) the requested content to the requesting user. In other words, the determination made by the cache server is whether to send the request to the server or to send the requested content, and not the content request itself, to the requesting user. The cache server never determines whether to send a received content request to either the server or another user node. Jacobs does not disclose a system in which it is determined whether to send a resource request to the server or to send that request to another user node.

THE "FORWARDING" LIMITATION

None of Bracho, Jacobs, and de Vries, or a combination thereof, discloses a method for discovering resources in which the resource request is forwarded from the first user node to another user node when it is determined to send the resource request to another user node, as is recited in independent claim 1. Independent claim 9 contains similar recitations. Similarly, none of Bracho, Jacobs, and de Vries, or a combination thereof, discloses a user node that includes a transmitting interface that forwards the resource request to another user node when the control means decides to send the resource request to another user node, as is recited in independent claim 17.

In preferred embodiments of the present invention, a resource request (to be published), which is received at the first user node, is forwarded from the first user node to another user node when it is determined to send the resource request to another user node. The "forwarding"

limitation recited in the independent claims requires that, <u>when it is determined in the determination process</u> described above to send the "resource request" to another user node, the "resource request" is <u>forwarded from the user node that received the request to another user node of the network</u>. Because the resource request is selectively forwarded (based on the outcome of the determination process) to another user node rather than just always being sent directly to the publish-subscribe server node, the requesting user node gains privacy.

As recognized by the Examiner, Bracho does not disclose a system in which a resource request to be published is forwarded from one user node to another user node when it is determined to send the resource request to another user node. However, the Examiner went on to state that the Jacobs reference makes up for this deficiency in the disclosure of Bracho by disclosing such a feature. This position of the Examiner is respectfully traversed.

The Jacobs reference also fails to disclose a system in which, when it is determined to send a resource request to another user node, <u>the resource request is forwarded from one user node to another user node</u>. In the system of Jacobs, the cache server receives a content request and determines whether to send that content request on to the content server or to send (a stale version of) the requested content to the requesting user. Based on the outcome of this determination, the cache server either sends the received content request on to the content server or <u>sends</u> (a stale version of) <u>the actual content requested in the content request to the requesting user</u>. In other words, the cache server selectively <u>sends the requested content, and not the content request itself, to the requesting user</u>. The cache server never sends <u>a received content request</u> to a user node. Jacobs does not disclose a system in which, when it is determined to send a resource request to another user node, the resource request is forwarded from one user node to another user node.

Applicant believes that the differences between Bracho, Jacobs, de Vries, and the present invention are clear in independent claims 1, 9, and 17, which set forth various embodiments of the present invention. Therefore, claims 1, 9, and 17 distinguish over the Bracho, Jacobs, and de

Vries references, and the rejection of these claims under 35 U.S.C. § 103(a) should be withdrawn.
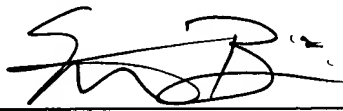
As discussed above, independent claims 1, 9, and 17 distinguish over the Bracho, Jacobs, and de Vries references, and thus, claims 2-8, claims 10-16, and claims 18-20 (which depend from claims 1, 9, and 17, respectively) also distinguish over the Bracho, Jacobs, and de Vries references. Therefore, it is respectfully submitted that the rejection of claims 1-20 under 35 U.S.C. § 103(a) should be withdrawn.

Applicant has examined the references cited by the Examiner as pertinent but not relied upon. It is believed that these references neither disclose nor make obvious the invention recited in the present claims. In view of the foregoing, it is respectfully submitted that the application and the claims are in condition for allowance. Reexamination and reconsideration of the application are requested.

If for any reason the Examiner finds the application other than in condition for allowance, the Examiner is invited to call the undersigned attorney at (561) 989-9811 should the Examiner believe a telephone interview would advance the prosecution of the application.

Respectfully submitted,

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By:

Stephen Bongini
Registration No. 40,917
Attorney for Applicant

FLEIT, KAIN, GIBBONS,
GUTMAN, BONGINI & BIANCO P.L.
One Boca Commerce Center
551 Northwest 77th Street, Suite 111
Boca Raton, Florida 33487
Telephone: (561) 989-9811
Facsimile: (561) 989-9812

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